

AMENDMENTS TO CLAIMS

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Claims 1-23 (Canceled)

24. A compound of formula R1-R2-R3, wherein:

R1 is a hexacyclen;

R3 is a β -nicotinamide adenine dinucleotide; and

R2 is a moiety that links R1 and R3, wherein said moiety is a flexible linker.

25. The compound of claim 24, wherein R2 is a polyglycine moiety containing between 1 and 3 glycines.

26. The compound of claim 24, wherein R2 is selected from the group consisting of polyethylene glycol (PEG), polystyrene-PEG, a [2-(2-aminoethoxy)ethoxy] acetic acid, allyloxycarbonyl- [2-(2-aminoethoxy)ethoxy] acetic acid, fluorenyl-methoxycarbonyl-[2-(2-aminoethoxy)ethoxy] acetic acid, ter-butyloxycarbonyl-[2-(2-aminoethoxy)ethoxy] acetic acid, benzyloxycarbonyl-[2-(2-aminoethoxy)ethoxy] acetic acid, and BMPS (N-(β -maleimido-propyloxy)succinimide).

27. A compound of the formula R1-R2-R3, wherein:

R1 comprises a moiety that binds to a hemoglobin binding site on a cytochrome b₅ at one or more amino acids selected from the group consisting of H26, E43, E44, E48, A54, D60, H80 and A88, wherein said moiety is a polyamine;

R3 comprises a moiety that binds to the cytochrome b₅ at one or more amino acids selected from the group consisting of I24, L25, H26 and H27, wherein said moiety is ATP or an ATP analog; and

R2 comprises a moiety that links R1 and R3, wherein said moiety is a flexible linker.

28. The compound of claim 27, wherein the polyamine is linear or cyclic.
29. The compound of claim 27, wherein R1 is hexacyclen.
30. The compound of claim 27, wherein R3 is β -nicotinamide adenine dinucleotide.
31. The compound of claim 27, wherein R3 is 1,N6-ethenoadenosine 5' triphosphate, β -nicotinamide adenine dinucleotide, 1,N6-ethenoadenosine hydrochloride, nicotinamide-1,6-ethenoadenosine, or coenzyme A.
32. The compound of claim 27, wherein R1 is hexacyclen and R3 is β -nicotinamide adenine dinucleotide.
33. The compound of claim 27, wherein R2 is a polyglycine moiety containing between 1 and 3 glycines.
34. The compound of claim 27, wherein R2 is selected from the group consisting of polyethylene glycol (PEG), polystyrene-PEG, [2-(2-aminoethoxy)ethoxy] acetic acid, allyloxycarbonyl- [2-(2-aminoethoxy)ethoxy] acetic acid, fluorenyl-methoxycarbonyl-[2-(2-aminoethoxy)ethoxy] acetic acid, ter-butyloxycarbonyl-[2-(2-aminoethoxy)ethoxy] acetic acid, benzyloxycarbonyl-[2-(2-aminoethoxy)ethoxy] acetic acid, and BMPS (N-(β -maleimido-propyloxy)succinimide).
35. A pharmaceutical composition comprising the compound of claim 24 or a pharmaceutically acceptable salt thereof.